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Dircksen et al.

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[54] **TRACTOR MOUNTED LOG SPLITTER**

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[52] **U.S. Cl.** ..... **144/193 A;** 144/193 E; 214/85

[51] **Int. Cl.²** **B27L 7/00**

[58] **Field of Search** ..... 144/2 N, 193 R, 193 A, 144/193 D, 193 E; 214/85

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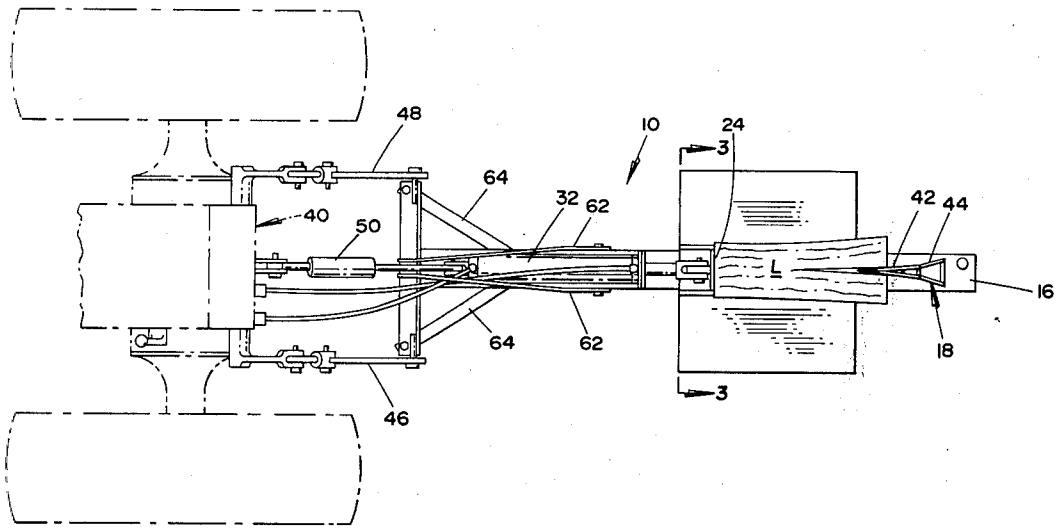
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[57] **ABSTRACT**

The log splitter includes a contilivered I-beam that connects at one end to a three point tractor hitch. An hydraulically activated pusher plate slides along the I-beam to engage one end of a log placed on the beam and drives the log through a wedge-shaped splitting member having two angles of divergent. The tractor supports and adjusts the elevation of the log splitter and provides the fluid drive therefor. A ramp secured to the I-beam assists in loading heavy logs onto the splitting surface and to support the I-beam on the ground.

6 Claims, 4 Drawing Figures



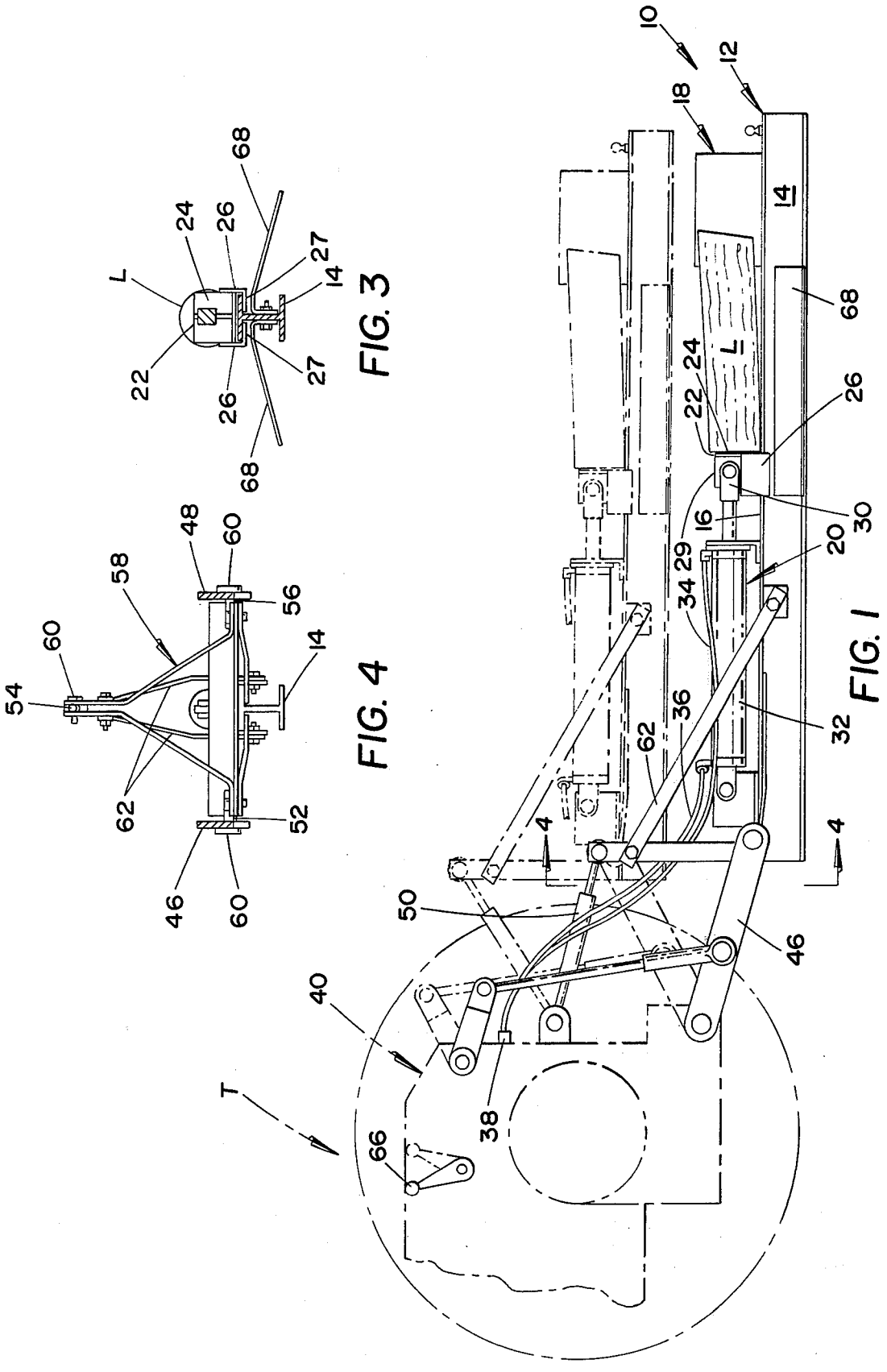


FIG. 1

FIG. 3

FIG. 4

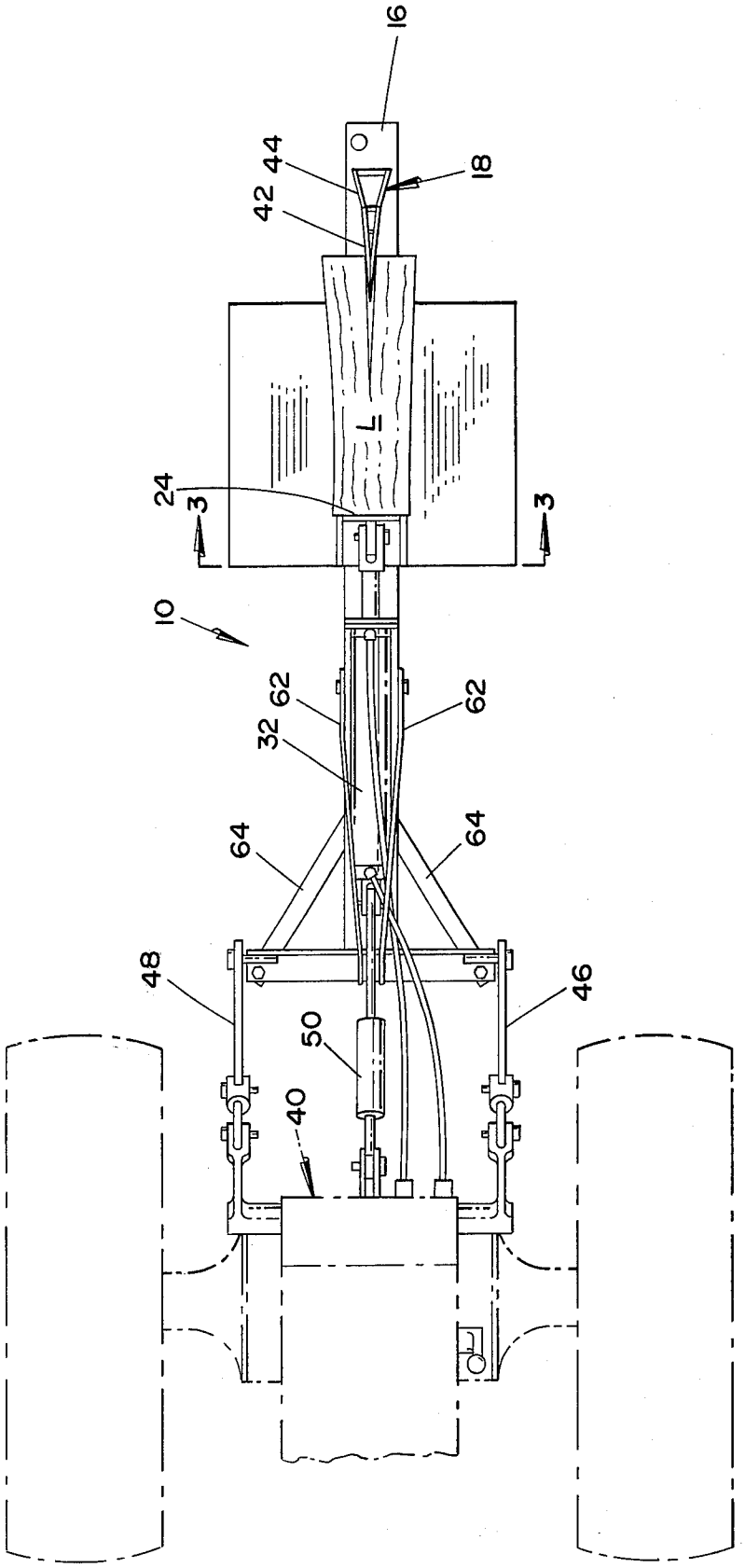


FIG. 2

TRACTOR MOUNTED LOG SPLITTER

BACKGROUND OF THE INVENTION

The invention relates to a device for splitting logs and more particularly relates to a log splitting device which derives its support and power from a tractor.

An object of the present invention is to provide a low cost, highly effective log splitting device which is supported by the power hitch of a tractor and connects to the hydraulic system of the tractor for power.

Another object of the present invention is to provide a new and improved log splitting device utilizing a two divergence angle wedge-shaped splitter member to improve the log splitting operation particularly when the logs are "green."

A further object of the present invention is to provide a new and improved log splitter that is supported as a contilever from the hydraulically-operated power hitch of a tractor to enable the log splitter to be positioned, for example, on the ground when splitting large logs and at convenient working height when splitting smaller logs.

The recent energy shortage has dramatically increased the demand for firewood and consequently increased the demand for powered log splitters. The present invnetion addresses such demand and provides a relatively inexpensive and mobile log splitter that can be mounted on the power hitch of a tractor. This arrangement eliminates the requirement for the splitter to be self-supporting and permits connection to the hydraulic system of the tractor thus eliminating the need for a self-contained power plant for the splitter.

The log splitter comprises an I-beam connected at one end to the power hitch of a tractor. A double-acting hydraulic ram connected to the hydraulic system of the tractor pushes a log past a double-divergent angle wedge for improved splitting of the log.

PREFERRED EMBODIMENT OF THE INVENTION

In the drawings:

FIG. 1 is an elevational view of the tractor-mounted log splitter according to the present invention and illustrating two vertical positions of adjustment of the splitter;

FIG. 2 is a plan view of the device of FIG. 1;

FIG. 3 is a sectional view taken substantially along the line 3—3 of FIG. 2; and

FIG. 4 is a sectional view taken substantially along line 4—4 of FIG. 1.

The preferred embodiment of the log splitter according to the present invention includes a log splitter indicated generally by the reference numeral **10.** The log splitter **10** includes a support or base member **12** which may be constructed from I-beam **14.**

The upper surface **16** of I-beam **14** supports log L to be split as illustrated in FIG. **1.** Log L is advanced toward splitting means or wedge-shaped member **18** by a double-acting hydraulic ram means **20.**

Ram means **20** includes a pusher plate **22** mounted for sliding movement along surface **16.** Plate **22** bridges surface **16** and includes a vertically extending, log engaging surface **24,** two depending skirt portions **26** having inwardly extending end portions **27** and a flange portion **29** for connection to the free end of piston rod **30.** The plate **22** slides relative to I-beam **14** and skirts **26** and end portions **27** prevent lateral and vertical separation of the plate **22** from I-beam **14** during operation. Plate **22** is driven in opposite directions by piston rod **30.** Piston rod **30** is driven by fluid in cylinder **32** in the usual manner.

Cylinder **32** is secured to one end of beam **14** in a suitable manner, as illustrated. Fluid is selectively delivered to each end of cylinder **32** by fluid hoses **34, 36.** Hoses **34, 36** are connected at one of their ends to cylinder **32** and at their opposite ends to fluid outlet **38** of the hydraulic system **40** of tractor T.

Hydraulic system **40** represents a convential hydraulic system present on many tractors to power implements. Control lever means (not illustrated) control delivery of fluid to cylinder **32** to move ram **30** in opposite direction to drive log L into wedge **18** and to retract to permit loading of another log L on surface **16.**

Wedge **18** improves the splitting action of logs by presenting two wedge portions **42, 44** (FIG. **2**). Wedge portion **42** has a smaller angle of divergence than does wedge portion **44** as clearly shown in FIG. **2.** Wedge portion **42** is more narrow to aid in the initial penetration of log L. After initial penetration, log L moves into contact with wedge portion **44** which causes a rapid separation of the log halves resulting, in most instances, in an immediate splitting of the entire log.

Such a wedge arrangement has been found to be of particular utility in splitting "green logs" and logs having long stringy fiber. The types of logs are difficult to split and the double-divergent wedge **18** affects rapid splitting of these logs. Obviously the wedge is also very effective in splitting the less difficult logs by accelerating the splitting time required per log.

Log splitter **10** is supported for vertical movement as a cantilever by tractor T. Tractor T has a commonly designated "three point hitch" comprising two power actuated links or arms **46, 48** and one adjustable length link or arm **50.** Arms **46, 48, 50** are pivotally connected at one end to tractor T as illustrated. Note that powered arms **46, 48** are connected to and driven by fluid power system **40.**

The other ends of arms **46, 48, 50** are pivotally connected to the apexes **52, 54, 56** (FIG. **4**) of generally triangular-shaped connector means or frame **58** by removable connector pins **60.** Frame **58** is suitably secured such as by bolts or welding to one end of beam **14** and is supported by vertical struts **62** and horizontal struts **64** as illustrated.

After log splitter **10** is connected to tractor T, link **50** is adjusted to orient frame **12** horizontal. Control lever **66** is moved to elevate frame **12** for transporting the log splitter to the work site and to adjust the working height of frame **12.** Two positions of adjustment of frame **12** are illustrated in FIG. **1.** The full line position illustrates the frame **12** resting on the ground where large diameter logs can be most conveniently loaded and split. When smaller diameter logs are to be split, frame **12** can be elevated to a convenient working height.

A pair of ramps **68** (FIG. **3**) are provided as an aid in rolling heavy logs onto surface **16.** The ramps **68** are suitably secured to the web of I-beam **14** such as by bolting as illustrated or by welding. Sufficient clearance is provided between skirts **26** and end portions **27** so that the ramps do not interfere with movement of the pusher plate **22.** The ramps **68** also function as stabilizers for the frame **12** when resting on the ground.

What we claim is:

1. A log splitter adapted to be supported by and operated from a tractor comprising an I-beam provid-

ing a base member adapted to support a log to be split, a connector frame at one end of said base member to effect cantilevered support of said base member from a tractor, log abutment means slidably mounted on said base member adapted to engage one end of a log, a wedge-shaped member on said base in opposed relation to said abutment means and adapted to engage the opposite end of a log, drive means on said base having power transfer means connectable to a tractor power system and operatively connected to said abutment means for sliding said abutment means on said base member to thereby effect relative movement between said abutment means and said wedge-shaped member to force said wedge-shaped member through a log, and ramp means connected to the web of said I-beam and extending outwardly and downwardly therefrom to facilitate the rolling of a log onto said base member and to stabilize the base member when resting on the ground.

2. A log splitter as defined in claim **1** wherein said abutment means comprises a plate extending vertically

from and slideable along said base member and reversible fluid operated ram supported on said base and connected to said plate.

3. A log splitter as defined in claim **2,** wherein said plate further includes depending skirt portions terminating in inwardly extending end portions disposed beneath the upper flange of the I-beam on opposite sides of the web thereof for guiding the plate in movement along said base member.

4. A log splitter as defined in claim **1** wherein said connector frame includes three connection areas arranged at the apex of a triangle.

5. A log splitter as defined in claim **1,** wherein said ramp means comprises a pair of plates secured to opposite sides of said web.

6. A log splitter as defined in claim **1,** wherein said wedge-shaped member includes first and second portions arranged to successively engage the log, said second portion having an angle of divergence greater than the angle of divergence of said first portion.

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